

PATENT
Docket No. 204552016410

CERTIFICATE OF HAND DELIVERY

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Nancy DeRiggi

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Toshiyuki OKUMURA

Serial No.: TO BE ASSIGNED

[Divisional of 09/380,537 filed Sept. 2, 1999]

Filing Date: January 17, 2002

For: GALLIUM NITRIDE
SEMICONDUCTOR LIGHT EMITTING
DEVICE HAVING MULTI-QUANTUM-
WELL STRUCTURE ACTIVE LAYER,
AND SEMICONDUCTOR LASER
LIGHT SOURCE DEVICE

Examiner: not yet assigned

Group Art Unit: not yet assigned

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to the calculation of the filing fee for this application, please enter the following
amendments:

IN THE CLAIMS

Please cancel claims 1-15 without prejudice or disclaimer and add new claims 16-25 as follows:

16. A gallium nitride semiconductor light emitting device having emission wavelengths within a band corresponding to ultraviolet to green, comprising a semiconductor substrate, an active layer having a quantum well structure and made of nitride semiconductor containing at least indium and gallium, and a first cladding layer and a second cladding layer for sandwiching the active layer therebetween, wherein

the active layer consists of two to four quantum well layers and one to three barrier layers each interposed between the quantum well layers, and the one or each barrier layer has a layer thickness of 4 nm or less.

17. The gallium nitride semiconductor light emitting device according to claim 16, wherein each of the quantum well layers has electrons and holes uniformly distributed therein.

18. The gallium nitride semiconductor light emitting device according to claim 16, wherein the gallium nitride semiconductor light emitting device is a semiconductor laser device and the active layer forms an oscillating section of the semiconductor laser device.

19. The gallium nitride semiconductor light emitting device according to claim 18, wherein the semiconductor laser device is a self-oscillating semiconductor laser device.

20. The gallium nitride semiconductor light emitting device according to claim 18, further comprising a driving circuit for injecting an electric current into the semiconductor laser device.

21. The gallium nitride semiconductor light emitting device according to claim 20, wherein the electric current is a modulated current and a modulation frequency of the current is 300 MHz or more.

22. A gallium nitride semiconductor laser device having emission wavelengths within a band corresponding to ultraviolet to green, comprising a semiconductor substrate, an active layer

having a quantum well structure and made of nitride semiconductor containing at least indium and gallium, and a first cladding layer and a second cladding layer for sandwiching the active layer therebetween, wherein

the active layer forms an oscillating section of the semiconductor laser device, and consists of two to four quantum well layers and one to three barrier layers each interposed between the quantum well layers, and the one or each barrier layer has a layer thickness of 4 nm or less, and wherein one of the first and second cladding layers is a p-type cladding layer, and the p-type cladding layer has a ridge portion and a planar portion on opposite sides of the ridge portion.

23. The gallium nitride semiconductor laser device according to claim 22, wherein the ridge has a width of about 1 μm to 5 μm .

24. The gallium nitride semiconductor laser device according to claim 22, wherein said planar portion has a film thickness of 0.05 μm to 0.5 μm .

25. The gallium nitride semiconductor light emitting device according to claim 18, wherein said light emitting device generates a modulated optical output when an electric current is injected thereinto.

REMARKS

Applicants present for prosecution in this application claims based on allowed parent application claims 6-9, 11, 14, 15, 18, 19, 21 and 23 that were canceled by the Amendment Under 37 CFR 1.312 filed January 2, 2002. The claim numbering starting at claim 16 is based on the fact that the claims as filed in the parent application should have been claims 1-15 as revised in the international stage and not original claims 1-11 as filed with the international application. The revised claims replaced the original claims during the parent prosecution, as they should have been deemed the original claims as filed of the parent application (and thus of this divisional application as well).

Applicants are in the process of preparing translations of prior art documents that the Examiner should consider in connection with the claims as provided above. Therefore, applicants respectfully request that this application not be examined until applicants can submit these translations.

Early action allowing claims 16-25 is solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to

Deposit Account No. 03-1952, Ref. 204552016410.

Respectfully submitted,

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Dated: January 17, 2002

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